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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/313,424	05/17/99	HUTTNER	T GR-98-P-8041

MM41/1011  
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EXAMINER

KEBEDE, B

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 10/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/313,424

Applicant(s)

HUTTNER ET AL.

Examiner

Brook Kebede

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 10-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on August 16, 2001 in Paper No. 18 has been entered.
2. This application contains claims 1-6 drawn to an invention nonelected without traverse in Paper No. 11. Applicants are advise to cancel the non-elected claims in response to this Office action.

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "providing two silicon semiconductor substrates; oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates; selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates; joining the two silicon semiconductor substrates by contacting the two oxide layers; and partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer " as recited in claim 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (US/5,468,657) in view of Sato et al. (USPAT/5,854).

Re claim 10, Hsu teaches a method of fabricating a semiconductor configuration comprising: providing a semiconductor structure (see Fig. 4) having a base layer (44), an insulation layer (59), and a monocrystalline silicon layer (3); introducing a passivating substance X (not labeled) between the insulation layer (59) and the monocrystalline silicon layer (3); and heat-treating the semiconductor structure with the passivating substance X, thereby, causing the passivating substrate diffuse into an interface between the insulation layer (59) and the monocrystalline silicon layer (3) (see Fig. 4 and Col. 7, lines 24-45).

However, Hsu does not specifically disclose limitations of providing two silicon semiconductor substrates; oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates; selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates; joining the two silicon semiconductor substrates by contacting the two

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oxide layers; and partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer.

Sato et al. disclose providing two silicon semiconductor substrates; oxidizing and forming a respective oxide layer on the two silicon semiconductor substrates; selecting an introducing step from the group consisting of introducing the passivating substance X into at least one of the oxide layers, introducing the passivating substance X before the oxidation step into one of the silicon semiconductor substrates, and introducing the passivating substance X after the oxidation step into one of the silicon semiconductor substrates; joining the two silicon semiconductor substrates by contacting the two oxide layers; and partially removing one of the silicon semiconductor substrates and forming the monocrystalline silicon layer in order to form SOI (see Figs. 2A-2D).

Sato et al. suggest that “formation of mono-crystalline Si semiconductor layer on an insulator is well known as silicon-on-insulator (SOI) technique. Many investigations have been made thereon since the devices made by the SOI technique have many advantages which are not achievable with a bulk Si substrate for usual Si integrated circuits. The advantages brought about by the SOI technique are as below: 1. Ease of dielectric separation, and practicability of high integration, 2. High resistance against radioactive rays, 3. Low floating capacity, and practicability of high speed operation, 4. Practicability of omission of a welling step, 5. Practicability of prevention of latching-up, 6. Practicability of thin film formation for complete depletion type field effect transistor, and so forth.” (see Sato et al. Col. 3, lines 42-59) One of ordinary skill in the art would have motivated to use SOI technique as Sato et al. disclosed in order to improve the overall device performance and applicability of the device.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided , Kadosh et al. reference with SOI technique as taught by Sato et al. because the device performance would have been improved.

Re claim 11, as applied to claim 10 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of forming a covering oxide layer (68) on the monocrystalline silicon layer (see Fig. 5).

Re claim 12, as applied to claim 10 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of patterning the monocrystalline silicon layer by etching away regions thereof down to the underlying insulation layer (see Fig. 5).

Re claim 13, as applied to claim 12 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of patterning step is performed before the step of introducing the passivating substance X into one of the insulation layer and the monocrystalline silicon layer (see Fig. 5).

Re claim 14, as applied to claim 12 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of patterning step is performed after the step of introducing the passivating substance X into one of the insulation layer and the monocrystalline silicon layer (see Fig. 5).

Re claim 15, as applied to claim 10 above, Hsu and Sato et al. in combination teach all the claimed limitations including the limitation of doping the monocrystalline silicon layer differently region by region by means of ion implantation; and performing the doping step after

the step of introducing the passivating substance X and the heat-treating step (see Col. 8, lines 17-67).

***Response to Arguments***

6. Applicants' arguments with respect to claims 10-15 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. THIS OFFICE ACTION IS MADE NON-FINAL

***Correspondence***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.
9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.
10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede  
*bk*  
October 8, 2001

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